Amendments to the Specification:

Please delete the title in its entirety and replace it with the following new title:

MAGNETIC DEVICES WITH A FERROMAGNETIC LAYER HAVING PERPENDICULAR MAGNETIC ANISOTROPY AND AN ANTIFERROMAGNETIC LAYER FOR PERPENDICULARLY EXCHANGE BIASING THE FERROMAGNETIC LAYER

Please insert the following paragraph on page 1 immediately after the title:

This is a divisional of, and claims priority to, U.S. Patent Application Serial No. 09/772,468, filed January 29, 2001, the disclosure of which is incorporated by reference in its entirety.

Please amend paragraph [0019] on page 4 as follows:

FIG. 11: A schematic sectional view of a prior art MTJ MR read head illustrating [[he]] the arrangement of the various layers of material, including the structure for providing longitudinal biasing of the sensing ferromagnetic layer.

Please amend paragraph [0025] on page 5 as follows:

The use of perpendicular exchange bias, the subject of this invention, will be described with reference to two important applications, namely that of improved high

density magnetic recording media and that of improved magnetic tunnel junction recording read heads.

Please amend paragraph [0027] on page 5 as follows:

~~Perpendicular exchange bias materials~~ Ferromagnetic Co films can show a magnetic anisotropy easy axis, which is either in-plane or perpendicular to the plane film, depending on their thickness. In particular, whereas Co films thicker than ~ 10 Å exhibit an in-plane easy axis, thinner Co films are known to show an out-of-plane easy axis. To obtain stronger out-of-plane magnetic anisotropy, thin Co films can be grown in a multilayered structure, where the thin Co layers are separated by a noble metal, such as Au or Pt. This is because the out-of-plane magnetic anisotropy, for such ultra-thin Co layers, is a result of an interfacial magnetic anisotropy which depends sensitively on the interface between the Co layer and the adjacent layers. The anisotropy of the bulk or volume of the Co film is typically in-plane although this can also have an out-of-plane component depending on the crystal structure and texture of the Co film. The same is true for Co-X alloys where X is, for example, Cr, Pt and Pd or a combination of these and other elements.

Please amend paragraph [0055] on page 15 as follows:

FIG. 14 shows a MTJ memory cell according to the present invention in which the magnetic moments of the fixed ferromagnetic layer 18' and the free ferromagnetic layer 32' are oriented perpendicular to the plane of the layers, as shown by the arrows 90' and 80' respectively. The moment of the fixed ferromagnetic layer is pinned by exchange biasing to

an AF layer 16' which displays perpendicular exchange bias. Since current must be passed perpendicularly through the ferromagnetic layers of the MTJ device for reading the state of the cell, the AF layer 16' must be conducting. Thus a suitable AF material is the PtMn alloy as described above and shown in FIG. 1C.